COLOR LAB
JULY 1980

Macbeth®
Division of
Kollmorgen Corporation

Spectralight
SPL-65/SPL-75

Operator's & Service Manual

Macbeth®
Division of
Kollmorgen Corporation

OPERATOR'S & SERVICE MANUAL FOR SPECTRALIGHT, MODELS SPL-65/SPL-75

IN BLDG 16 MODEL SPL 75-B
SERIAL NO 80239
TEK ITEM NO. 85513
(2 FT DEEP
3 FT WIDE)

ISSUE DATE: OCTOBER 1973
PRICE: $5.00

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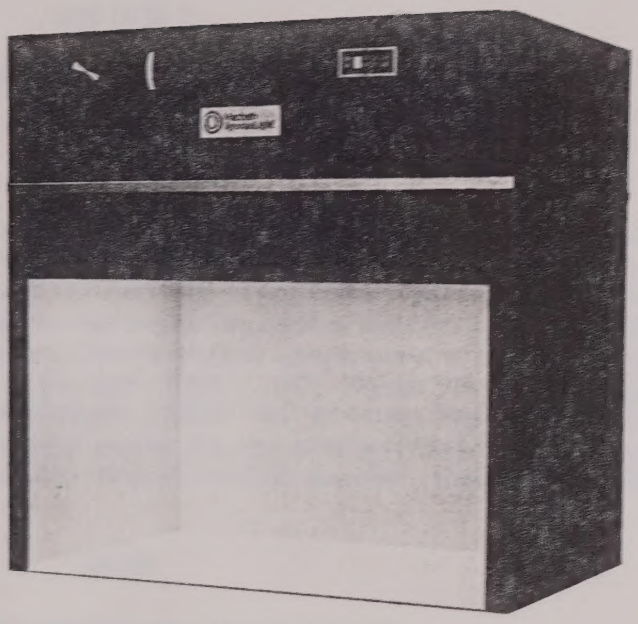
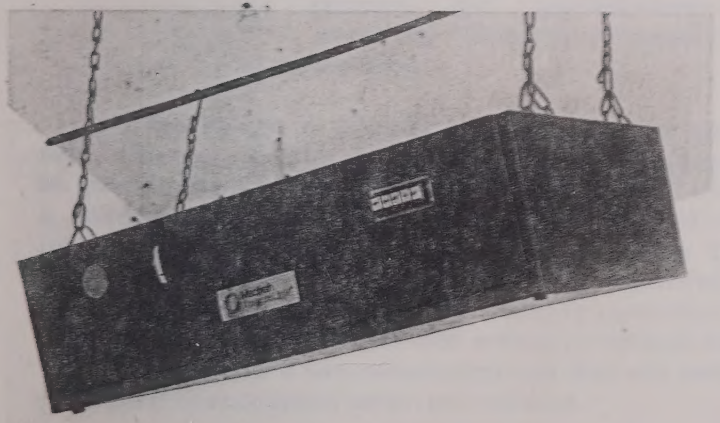


a. With Viewing Booth



b. Suspended Installation

Figure 1-1. Spectralight, SPL-75/SPL-65

SECTION 1

GENERAL INFORMATION

1.1 GENERAL DESCRIPTION

The Macbeth Spectralight (figure 1-1) is a color-balanced lighting system that provides three selectable light sources [Artificial Daylight, Minus Red (cool white fluorescent), and Horizon Sunlight] to enable critical color matching in consonance with ASTM specifications. A built-in, ultra-violet light source may be used by itself or with any of the three light sources for checking optical brighteners. Correlated color temperatures of the light sources provided in the Spectralight are: (1) Daylight—7500 ± 200K (Model SPL-75) or 6500 ± 200K (Model SPL-65); (2) Horizon Sunlight—2300K; and (3) Minus Red—4400K. When ultra-violet is combined with the Daylight source, the unit provides a close spectral-energy-distribution match to daylight extending through the CIE specified range of 300 to 830 nanometers.

NOTE

Both accurate color temperature and spectral-energy-distribution match to daylight are maintained by control of lamp voltage (via front-panel control). Through use of tungsten-halogen lamps (paragraph 1.2.2), color temperature and spectral-energy-distribution match are maintained throughout the life of the lamp.

The Spectralight is normally booth-mounted to provide a controlled viewing environment. However, the unit may also be suspended; in these cases, special consideration must be given to the surround (refer to paragraph 2-3). Illuminance provided by the Spectralight is uniform within ± 20% for: (1) the entire enclosed viewing area of the viewing booth (booth-mounted installations), and (2) approximately 2-1/2 x 6 ft. viewing area under a dual-unit suspended installation. In dual-unit suspended installations, the individual units are interconnected via cable and are centrally controlled. The Spectralight is fan cooled; air intake is through the fan itself and exhaust is through louvers in the top cover of the unit. The Spectralight is a well-constructed unit that will render long and satisfactory service if the suggestions contained herein are followed.

1.2 MAJOR COMPONENTS AND CONSTRUCTION FEATURES

1.2.1 CONSTRUCTION FEATURES (SEE FIGURE 1-2)

The housing (13) of your Macbeth Spectralight and its associated viewing booth are both made of 20-gauge formed steel and finished with baked, vinyl-textured enamel. For

ease of removal and for ready access to lamps and reflectors, an aluminum-framed prismatic lens (9) is pin-hinged to notched receptacles (6) on one side of the housing and secured to the other side of the housing via spring-loaded catches. Ballasts, transformers, fan, and wiring are all located in the upper portion of the housing under a removable louvered top cover. Hinged filter frames (12) that lock to the housing via winged, quarter-turn fasteners facilitate removal of the daylight filters (paragraph 1.2.3) for cleaning or replacement. Conversion from 7500 K to 6500 K or vice versa is possible by changing the daylight filters.

1.2.2 LAMPS

The Spectralight is furnished with: (1) two 750-watt tungsten-halogen incandescent lamps (11) (Artificial Daylight); (2) four 500-watt tungsten-halogen incandescent lamps (5) (Horizon Sunlight); (3) two 30-watt cool white fluorescent lamps (10) (minus red); and (4) two 30-watt BLB (black light blue) fluorescent lamps (8) . The daylight source lamps (i.e. 750-watt tungsten-halogen lamps) are aged and then carefully selected in accordance with color-temperature criteria, and have an average rated life of 400 hours. Meticulous quality control assures the customer of highest quality performance and accurate reproduction when it is necessary to re-lamp the unit. Replacement lamps (refer to the parts information given in Section IV) should be obtained from the Macbeth Color & Photometry Division directly or from an authorized dealer.

NOTE

It is suggested that lamps be replaced in complete sets. For example, whenever one of the daylight lamps burns out, it is suggested that both lamps be replaced.

Important: In order to avoid wasteful useage of available lamp life and electrical energy, it is suggested that the daylight lamps be de-energized when not in actual use. Sample orientation and other make-ready operations (i.e. operations preparatory to color matching) can be performed equally as well under cool-white (minus red) lamps.

1.2.3 DAYLIGHT FILTERS

Each of the daylight filters employed in the Spectralight comprises four pieces of Corning 5900 glass carefully selected from a particular portion of a given melt in order to provide the spectral power distribution of Daylight when combined with the lamp, reflector, and diffuser combination.

1.2.4 BALLASTS

The Spectralight contains three ballasts: two 30/40 watt ballasts and two starters are employed for the ultraviolet lamps; and a 2-lamp 40-watt rapid-start ballast is employed for

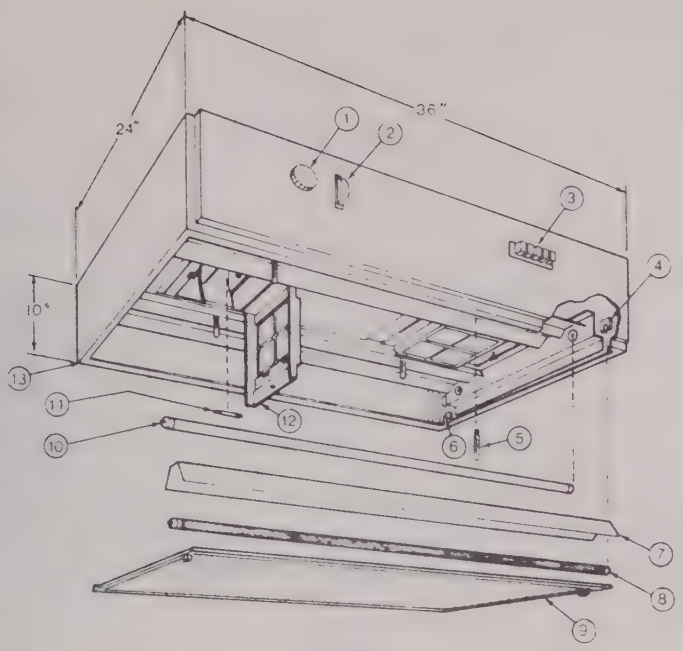


Figure 1-2. Spectralight Luminaire, Exploded View

the Minus Red lamps. Unless otherwise specified, ballasts provided are designed for 120 vac/60Hz, 220 vac/50Hz, or 220 vac/60Hz operation; they have a high power factor and "A" sound rating, and are thermally protected (class P).

1.2.5 PRISMATIC LENS AND REFLECTORS

The prismatic lens employed in the Spectralight is a frame-mounted, single-sheet (34.6 inches by 22.5 inches) of clear, Corning glass that provides controlled brightness, high transmission of ultra-violet to near infra-red energy, and is resistant to the effects of age, moisture, and heat. Pin hinges on the lens frame are designed to rest in notched receptacles of the housing so that the prismatic lens may be: (1) swung out of the way for access to lamps and reflectors, or (2) removed completely and easily for periodic cleaning of lens, filters, and reflectors.

All reflectors used in the Spectralight are constructed of 20-gauge aluminum with a special surface coating. Reflectors for the UV, Minus Red, and Horizon Sunlight have a specular finish whereas the daylight reflector has a diffuse type finish.

1.2.6 AUTOTRANSFORMER

Contained in the Spectralight is a continuously-adjustable autotransformer that controls the operating voltage applied to daylight lamps. Proper operating voltage (as evidenced on the front-panel meter) must be maintained in order to insure the specified Daylight correlated color temperature (i.e. 7500K or 6500K) of the daylight sources.

SECTION II

INSTALLATION

2.1 INPUT POWER REQUIREMENTS

The Spectralight is factory-wired (for 120 vac 60 Hz, 220 vac 50 Hz, or 220 vac 60 Hz single-phase, operation) to customer specifications; specific input power requirements for each unit are indicated on the equipment label. For detailed factory wiring information, refer to the circuit diagrams given in section 5 of this manual.

Power consumption for each unit is 1600 watts maximum. Voltage, current, and frequency requirements given on the equipment label must be met to assure optimum performance within specifications. It is recommended that the convenience outlet made available for the Spectralight, terminate an unloaded line; line loading can cause light intensity reduction with resultant changes in color temperature. Note that an inability to obtain a proper indication on the front-panel, vertical meter via adjustment of the autotransformer indicates an excessive line-load condition.

CAUTION

Do not operate or attempt to operate the Spectralight on d-c power.

2.2 LOCATION OF SPECTRALIGHT

Information contained in figures 2-1 through 2-3 (typical installation drawings) encompass those installation requirements that assure best results.

2.3 RECOMMENDATIONS FOR SURROUND

The Spectralight is designed for critical color matching and inspection tasks that are inherently influenced by the immediate viewing environment. Booth-mounted installations provide a standardized viewing environment; therefore, no consideration need be given to the surround. However, when the Spectralight is used as an overhead illuminator, it is very important that certain precautions be taken to insure optimum results. In most instances, extraneous illumination (natural or artificial) must be avoided. The best location for the Spectralight is in a windowless room. If there are windows, they should be painted; light-tight curtains or venetian blinds should be employed. It is important that the background be a neutral gray color, preferably light gray similar to Munsell notation N7/. If the Spectralight is used for lighting of a localized area, then this area or table should be shielded from extraneous illumination by a curtain. In this instance, the curtain must also be of light neutral gray which, in addition to shielding the special area from extraneous illumination, will provide a second important factor, a neutral gray background, which is desireable to avoid brightness contrast and color reflections which might result if the curtain were anything but neutral.

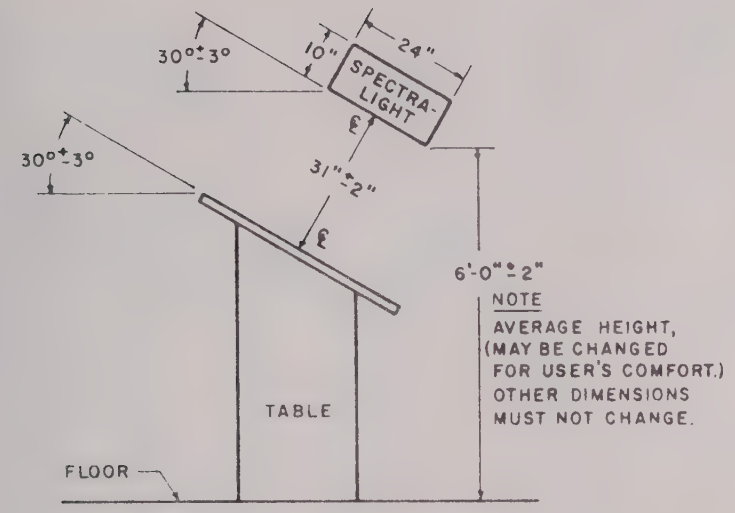


Figure 2-1. Recommended Single-Unit Suspended Installation

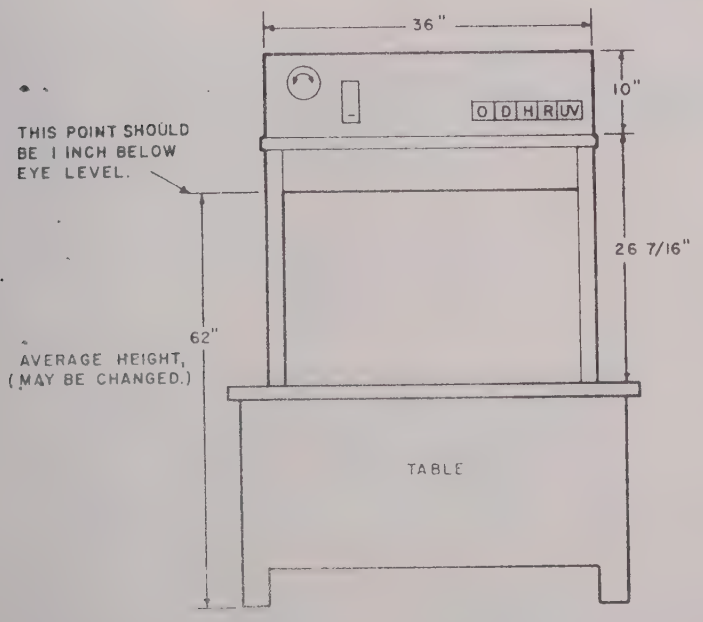


Figure 2-2. Spectralight Mounted on Viewing Booth

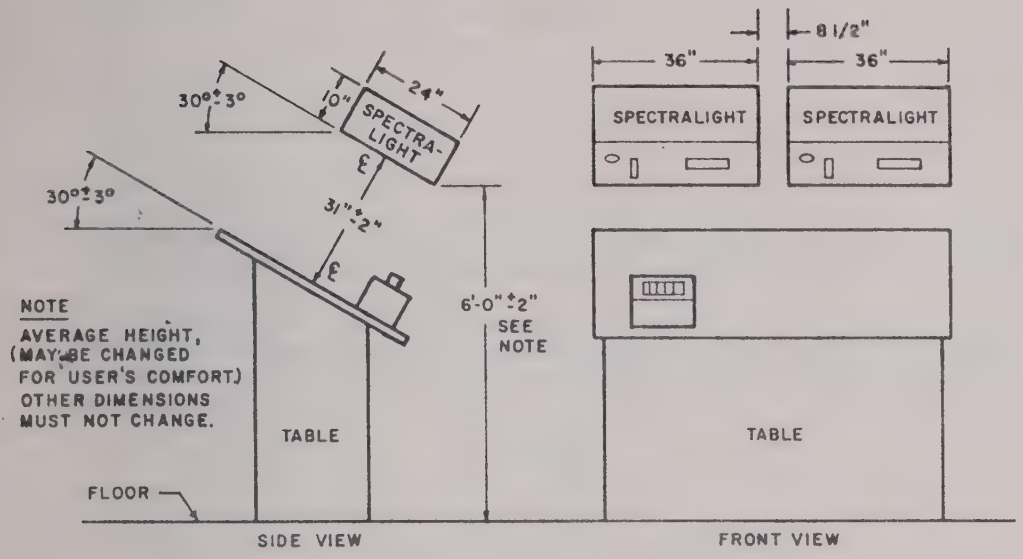


Figure 2-3. Recommended Dual-Unit Suspended Installation (w/Remote Control)

2.4 HEAT CONSIDERATIONS

Since all light sources add heat to the area in which they operate, thermal contribution should be a consideration during installation planning. Thermal contribution of the Spectralight during normal operation is 5460 BTU maximum.

2.5 INSTALLATION INSTRUCTIONS

2.5.1 BOOTH MOUNTED INSTALLATION (FIGURE 2-2)

NOTE

The Spectralight and assembled viewing booth are shipped from the factory in one container; filters, lamps, and prismatic lens have been removed from the unit and enclosed in an accessory pack which is stored in the booth during shipment.

1. Carefully unpack shipping container; remove Spectralight housing, prismatic lens, and booth (with accessory pack) from container. Remove contents of accessory pack and set them aside.

NOTE

To insure adequate support for unit refer to weight data below:

Spectralight. . . . . 90 lbs.

Viewing Booth . . . . 45 lbs.

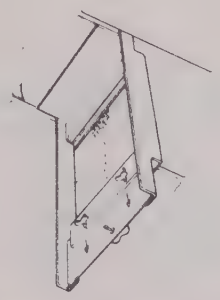
2. Place viewing booth on table or bench at operating location.

3. Position Spectralight housing so that it is oriented with viewing booth. Lift Spectralight housing and set upon support flanges at top of booth.

4. Turn winged, quarter-turn fasteners counterclockwise and open filter frames (12, figure 1-2) for access to daylight compartments. Using cotton gloves, install two 750-watt lamps (11, figure 1-2) by inserting into clips provided (see CAUTION below).

CAUTION

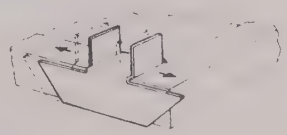
Incandescent lamps should not be touched with bare fingers; clean lamps with isopropyl alcohol if touched. Holding lamp at center during installation or removal may cause breakage—refer to paragraph 3.2.1



5. Install daylight filter pack in each filter frame; insure that metallic screen appears at hinged side of filter frame. Secure filter pack in frame by sliding movable plate over edge of pack and tightening small winged nuts. Raise filter frames to horizontal (i.e. closed) position and secure with quarter-turn fasteners.

6. Using cotton gloves, install four 500-watt Horizon Sunlight lamps (5, figure 1-2) in their respective positions (see CAUTION preceding step 5).

7. Mount two 30-watt, Minus Red (cool white fluorescent) lamps (10, figure 1-2) and two 30-watt, BLB (Black Light Blue) lamps (8, figure 1-2). BLB lamps are mounted at outer-edge reflectors.



8. Insert hinge pins of prismatic lens (9, figure 1-2) into slotted receptacles (6, figure 1-2) located at bottom rear corners of housing. Raise prismatic lens to horizontal (i.e. closed) position and secure by pushing two slide-mounted fasteners to their extended position. *Note*: Make certain that fasteners are engaged before letting go of glass.

9. Ensure that front-panel OFF switch is depressed; connect power cable to 120-vac (single-phase) convenience outlet.

CAUTION

Make certain that air flow through the intake filter and exhaust louvers is not obstructed in any way.

10. Depress front-panel DAY switch and adjust auto-transformer (1, figure 1-2) so that pointer is aligned with lower black fiducial mark on vertical meter (2, figure 1-2). Unit is now ready for operation.

CAUTION

Filter packs and lamps get extremely hot during normal operation. Do not touch filter packs or lamps without allowing time to cool.

2.5.2 SINGLE-UNIT SUSPENDED INSTALLATION

NOTE

To insure adequate mounting support for a suspended unit refer to weight data below:

Spectralight . . . . 90 lbs.

1. Carefully unpack shipping containers; remove Spectralight housing, accessory pack, and prismatic lens. Remove contents of accessory pack (i.e. lamps and filter packs).

2. Remove top cover of housing and set cover aside. Remove four narrow-slot knockouts located at each end of housing and install "U" shaped hangers (provided with unit) as indicated in figure 2-4. Connect chains to holes in "U" shaped hangers and replace top cover.

3. Refer to figure 2-1. Suspend Spectralight housing in proper position over work area; housing should be horizontal to facilitate installation of prismatic lens, filter packs, and lamps.

4. Turn winged, quarter-turn fasteners counterclockwise and open filter frames for access to daylight compartments. Using cotton gloves, install two 750-watt lamps (11, figure 1-2) by inserting into clips provided (see CAUTION below).

CAUTION

Incandescent lamps should not be touched with bare fingers; clean lamps with isopropyl alcohol if touched. Holding at center during installation or removal may cause breakage—refer to paragraph 3.2.1

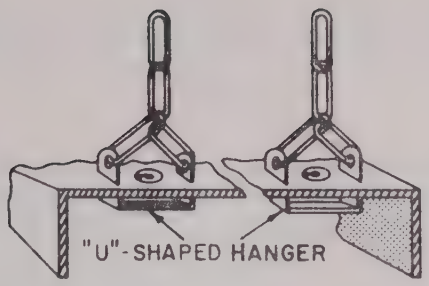
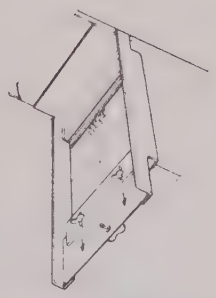


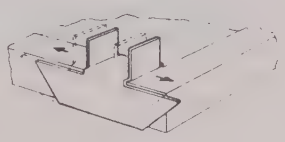
Figure 2-4. Chain Suspension Details



5. Install daylight filter pack in each filter frame; insure that metallic screen appears at hinged side of filter frame. Secure filter pack in frame by sliding movable plate over edge of pack and tightening small winged nuts. Raise filter frames to horizontal (i.e. closed) position and secure with quarter-turn fasteners.

6. Using cotton gloves, install four 500-watt Horizon Sunlight lamps (5, figure 1-2) in their respective positions (see CAUTION preceding step 5).

7. Mount two 30-watt, Minus Red (cool white fluorescent) lamps (10, figure 1-2) and two 30-watt, BLB (Black Light Blue) lamps (8, figure 1-2). BLB lamps are mounted at outer-edge reflectors.



8. Insert hinge pins of prismatic lens (9, figure 1-2) into slotted receptacles (6, figure 1-2) located at bottom rear corners of housing. Raise prismatic lens to horizontal (i.e. closed) position and secure by pushing two slide-mounted fasteners to their extended position. *Note:* Make certain that fasteners are engaged before letting go of glass.

9. Adjust suspension chains until Spectralight housing attains 30° angle with horizontal in accordance with recommendations given in figure 2-1.

10. Ensure that front-panel OFF switch is depressed; connect power cable to 120/220-vac (single-phase) convenience outlet.

CAUTION

Make certain that air flow through the intake filter and exhaust louvers is not obstructed in any way.

11. Depress front-panel DAY switch and adjust autotransformer (1, figure 1-2) so that pointer is aligned with lower black fiducial mark on vertical meter (2, figure 1-2). Unit is now ready for normal operation.

CAUTION

Filter packs and lamps get extremely hot during normal operation. Do not touch filter packs or lamps without allowing time to cool.

2.5.3 DUAL-UNIT SUSPENDED INSTALLATION

NOTE

To insure adequate mounting support for a dual-suspended Spectralight installation refer to weight data below:

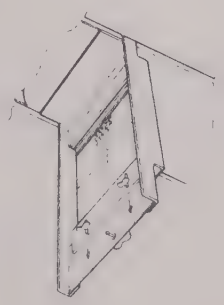
Spectralight . . . . 90 lbs.

1. Carefully open shipping containers; remove Spectralight housings; accessory package; and prismatic lenses. Open accessory package and set contents aside.
2. Remove top cover of each Spectralight housing and set covers aside. Remove four narrow-slot knockouts located at each end of housing and install "U" shaped hangers (provided with unit) as indicated in figure 2-4. Connect chains to holes in "U" shaped hangers. Replace top covers.
3. Refer to figure 2-3. Suspend Spectralight units in proper position over work area; housing should be horizontal to facilitate installation of lamps, filter packs, and prismatic lens. Ensure that the two units are 8-1/2 inches apart in accordance with the recommendations of figure 2-3.
4. Turn winged, quarter-turn fasteners counterclockwise and open filter frames (12, figure 1-2) for access to daylight compartments. Using cotton gloves, install 750-watt lamps (11, figure 1-2) by inserting into clips provided (see CAUTION below).

CAUTION

Incandescent lamps should not be touched with bare fingers; clean lamps with isopropyl alcohol if touched. Holding at center during installation or removal may cause breakage—refer to paragraph 3.2.1

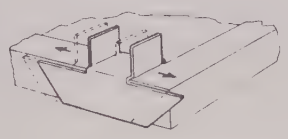
5. Install daylight filter pack in each filter frame; insure that metallic screen appears at hinged side of filter frame. Secure filter pack in frame by sliding movable plate over edge of pack and tightening small winged nuts. Raise filter frames to horizontal (i.e. closed) position and secure with quarter-turn fasteners.



6. Using cotton gloves, install four 500-watt Horizon Sunlight lamps (5, figure 1-2) in their respective positions (see CAUTION preceding step 5).

7. Mount two 30-watt, Minus Red (cool white fluorescent) lamps (10, figure 1-2) and two 30-watt, BLB (Black Light Blue) lamps (8, figure 1-2). BLB lamps are mounted at outer-edge reflector of each unit.

8. Insert hinge pins of prismatic lens (9, figure 1-2) into slotted receptacles (6, figure 1-2) located at bottom rear corners of housing. Raise prismatic lens to horizontal (i.e. closed) position and secure by pushing two slide-mounted fasteners to their extended positions. *Note*: Make certain that fasteners are engaged before letting go of glass.



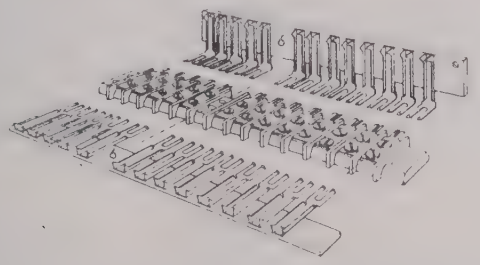
9. Adjust suspension chains until Spectralight housing units attain a 30° angle to the horizontal in accordance with recommendations given in figure 2-3.

NOTE

Dual-unit suspended installations are remotely controlled and do not contain push-button control panels.

10. Remove cover from remote control unit. Refer to figure 5-4 and connect input power cable to terminal strip located at rear of remote control unit.

11. The cable from each Spectralight unit contains power and control leads and is terminated in a fixed fanning strip. Connect each of these fanning strips to terminal strip of remote control unit as indicated below. Insure that no leads are connected to terminal 6 of remote control unit.



12. Ensure that OFF pushbutton of remote control unit is depressed, and replace cover.

13. Mount remote control unit in any convenient location, and connect input power cable to 220 vac, single-phase power source.

CAUTION

Make certain that air flow through the intake filter and exhaust louvers is not obstructed in any way.

14. Depress remote control DAY switch and adjust autotransformer (1, figure 1-2) of each Spectralight unit so that pointer is aligned with lower black fiducial mark on vertical meter (2, figure 1-2). If adjustment of vertical meter can not be accomplished, check line voltage; this is an indication of excessive line-loading of power source.

CAUTION

Filter packs and lamps get extremely hot during normal operation. Do not touch filter packs or lamps without allowing time to cool.

SECTION III

MAINTENANCE

CAUTION

To avoid any possibility of electrical shock, disconnect input power from the unit before proceeding with maintenance procedures.

3.1 CLEANING

With the exception of air louvers located on top of the unit, the Spectralight housing is completely enclosed; therefore cleaning is kept to a minimum. Further, whenever practicable, materials utilized in construction of the unit are those that are least susceptible to the deleterious effects of dust, dirt, lint, etc. However, an accumulation of dust, dirt, or lint will decrease the light intensity which may, in turn, result in a change in the illumination color temperature.

CAUTION

Filter packs and lamps get extremely hot during normal operation. Do not touch without allowing time to cool.

To clean the Spectralight, proceed as follows.

1. Remove prismatic lens (9, figure 1-2) from housing by: (a) releasing slide-mounted fasteners; (b) lowering prismatic lens to vertical position; (c) lifting lens slightly so that hinge pins slip out of slotted receptacles in housing. The glass should be washed

with soap and water and thoroughly rinsed and dried so that no film of soap remains.

2. Refer to CAUTION below. Remove daylight filter pack from filter frame (12, figure 1-2) and remove all lamps (5/8/10/11, figure 1-2). *IMPORTANT*: incandescent lamps employed in the Spectralight require special handling (refer to paragraph 3.2.1). Dust can be removed from reflectors and lamps with a clean, dry, lint-free cloth (see CAUTION below). To remove dirt, clean reflectors and lamps with: warm water and mild detergent; or an ammonia type window cleaner. Note that filter packs should not be subjected to excessive moisture; therefore a spray-type window/glass cleaner should be used to clean them.

CAUTION

Filter packs and lamps get extremely hot during normal operation. Do not touch filter packs or lamps without allowing time to cool.

3. Remove clip-mounted air filter from top cover. Clean filter with small vacuum cleaner or any suitable cleaning solvent (see CAUTION below).

CAUTION

Carbon Tetrachloride is highly toxic; its use should be avoided. Trichlorethylene has paint-removing qualities; do not use on painted surfaces.

4. Using small vacuum cleaner, clean interior of Spectralight housing.
5. Reassemble Spectralight in reverse order of disassembly. When replacing filter packs, make certain that metallic screen is placed at hinged side of filter frame. When replacing incandescent lamps, pay particular attention to the NOTE below.

NOTE

Incandescent lamps should not be touched with bare fingers; clean lamps with isopropyl alcohol if touched.

3.2 REMOVAL AND REPLACEMENT OF COMPONENTS

3.2.1 LAMP REPLACEMENT

CAUTION

Filter packs and lamps get extremely hot during normal operation. Do not touch filter packs or lamps without allowing time to cool.

Conventional lamp sockets have been used for fluorescent lamps (8 & 10, figure 1-2) and the four Horizon Sunlight incandescent lamps (5, figure 1-2). Once the prismatic lens has been lowered out of the way, replacement procedures for these lamps are obvious upon inspection. See NOTE preceding step 1 below.

Special spring-loaded, notched, ceramic sockets are provided for the two daylight incandescent lamps (11, figure 1-2). Improper handling of these lamps during removal or installation may result in breakage. When removing daylight incandescent lamps, proceed as indicated below; installation should be accomplished in a similar manner. *IMPORTANT*: To insure proper equipment performance, replacement daylight incandescent lamps should be ordered only from the Macbeth Color & Photometry Division or from an authorized dealer.

NOTE

Incandescent lamps should not be touched with bare fingers; clean lamps with isopropyl alcohol if touched.

1. With thumb and forefinger, grasp flat portion of lamp immediately adjacent to ceramic socket at either end (do not grasp center of lamp as this may cause breakage).
2. Push lamp in direction of ceramic socket with sufficient pressure to release other end of lamp. Lift lamp clear of sockets.

3.2.2 REPLACEMENT OF DAYLIGHT FILTER PACK

To replace the daylight filter pack, proceed as follows:

CAUTION

Filter packs and lamps get extremely hot during normal operation. Do not touch filter packs or lamps without allowing time to cool.

1. Turn winged, quarter-turn fasteners counterclockwise and open filter frame.
2. Loosen (do not remove) small winged nuts and slide movable plate so that filter pack can be lifted free of filter frame.
3. Remove filter pack from filter frame.
4. Install new filter pack so that metallic screen is placed at hinged, exterior side of filter frame. Slide movable plate over edge of filter pack and tighten winged nuts.
5. Close filter frame and secure with winged quarter turn fasteners.

3.2.3 REMOVAL/REPLACEMENT OF ELECTRICAL COMPONENTS

When the top cover is removed from the Spectralight housing, all electrical components (ballasts, autotransformer, switches, fan, etc.) and wiring are exposed and replacement

procedures are obvious. The following information should be noted.

1. Greater accessibility to either U.V. ballast can be obtained by first removing the associated reflector (paragraph 3.2.3).
2. When wires are to be disconnected, carefully noting the color code and then labeling each wire re: termination may circumvent the need for circuit tracing. Wiring information is provided in figures 5-1 through 5-5.

SECTION IV

REPLACEMENT PARTS LIST

This section describes the major replacement parts for SPECTRALIGHT SPL-65 and SPL-75. Separate lists are provided for each unit designed for a specific type of installation (e.g. overhead suspension vs. booth-mounted, etc.) and parts peculiar to different input-power configurations are appropriately noted in the "Usable On" column. If the "Usable On" column does not contain any notation, the part is common to all input-power configurations.

To expedite delivery when ordering any part, specify the following:

A. Generic name
B. Reference symbol
C. Part number
D. Model and serial number of the equipment containing the part being replaced; this can be obtained from the equipment data plate.

PARTS CATEGORY	PAGE
Spectralight SPL-75 Single-Unit Suspended	16
Spectralight SPL-75 With Booth	17
Spectralight SPL-65 Single-Unit Suspended	18
Spectralight SPL-65 With Booth	19
Spectralight SPL-75L2 Dual-Unit Suspended	20

SPECTRALIGHT SPL-75 SINGLE-UNIT SUSPENDED

Macbeth Part No.	DESCRIPTION 1 2 3 4 5 6 7	Units Per Assembly	Usable On Code
1310014*	. LUMINAIRE: SPL-75, Final Assy	1	
23005910	. . DIFFUSING GLASS (Prismatic Lens) FRAME & LATCH ASSY	1	
29003011	. . FILTER ASSY	2	
20120014	. . LAMP: Fluorescent BLB (Black Light Blue), 30 watt, #F30T8/BLB	2	
20115027	. . LAMP: Fluorescent, Cool White, 30-watt GE #F36T12/CW	2	
20130001	. . LAMP: Tungsten-Halogen, 500 watt, 120 volt, Bromine filled, Sylvania #500Q/CL	4	
20120015	. . LAMP: Tungsten-Halogen, 750 watt, 120 volt, (Daylight—see NOTE below)	2	
	NOTE Daylight lamps are factory selected in accordance with critical performance criteria. To insure proper performance of your equipment, replacement lamps should be ordered directly from the Macbeth Color & Photometry Division or from an authorized dealer.		
84004310	. . STARTER: FS-4	2	
22000004	. . AIR FILTER ASSY: with mounting clips, Rotron #15449	1	
10004770	. . LINECORD ASSY	1	120V, 60Hz
10004771	. . LINECORD ASSY	1	220V, 50/60Hz
24001150	. . METER: with mounting hardware	1	
03100019	. . FAN: Muffin, Mark 4 Rotron #747	1	120V, 60Hz
03000080	. . FAN: Muffin, Mark 4 Rotron #M756	1	220V, 50/60Hz
44000130	. . TRANSFORMER: Power	1	
44000140	. . AUTOTRANSFORMER: Variac	1	120V, 60Hz
44000141	. . AUTOTRANSFORMER: Variac	1	220V, 50/60Hz
44000080	. . BALLAST: Slimline, Universal #213 (Cool White Fluorescent)	1	120V, 60Hz
44000120	. . BALLAST: Slimline, Universal #378 (Cool White Fluorescent)		220V, 50 Hz
44000090	. . BALLAST: Slimline, Advance #XSH-240-S-TP (Cool White Fluorescent)		220V, 60 Hz
23005880	. . REFLECTOR ASSY: U.V.	2	
38009120	. . . REFLECTOR: U.V.	1	
44000370	. . . BALLAST: 1-30 watt, 120V, 60Hz, Advance #L-140F-TP, GE #8G 3706, or Universal #202-B-TC-P	1	
	*Voltage Variations Last digit 0= 120V/60Hz 1= 220V/50Hz 2= 220V/60Hz		

Macbeth Part No.	DESCRIPTION 1 2 3 4 5 6 7	Units Per Assembly	Usable On Code
1310015*	. FINAL ASSY:		(See * below)
23005730	. . VIEWING BOOTH ASSY	1	
1310018*	. . LUMINAIRE ASSY	1	(See * below)
23005910	. . . DIFFUSING GLASS (Prismatic Lens) FRAME & LATCH ASSY	1	
29003010	. . . FILTER ASSY	2	
20120014	. . . LAMP: Fluorescent, BLB (Black Light Blue), 30 watt, #F30T8/BLB	2	
20115027	. . . LAMP: Fluorescent, Cool White, 30 watt GE F36T12/CW	2	
20130001	. . . LAMP: Tungsten-Halogen, 500 watt, 120 volt, Bromine filled, Sylvania #500Q/CL	4	
20120015	. . . LAMP: Tungsten-Halogen, 750 watt, 120 volt, (Daylight—see NOTE below)	2	
	NOTE Daylight lamps are factory selected in accordance with critical performance criteria. To insure proper performance of your equipment, replacement lamps should be ordered directly from the Macbeth Color & Photometry Division or from an authorized dealer.		
84004310	. . . STARTER: FS-4	2	
22000004	. . . AIR FILTER ASSY: with mounting clips Rotron #15449	1	
10004770	. . . LINECORD ASSY	1	120V, 60Hz
10004771	. . . LINECORD ASSY	1	220V, 50/60Hz
24001150	. . . METER: with mounting hardware	1	
03100019	. . . FAN: Muffin, Mark 4, Rotron #747	1	120V, 60Hz
03000080	. . . FAN: Muffin, Mark 4, Rotron #M756	1	220V, 50/60Hz
44000130	. . . TRANSFORMER: Power	1	
44000140	. . . AUTOTRANSFORMER: Variac	1	120V, 60Hz
44000141	. . . AUTOTRANSFORMER: Variac	1	220V, 50/60Hz
44000080	. . . BALLAST: Slimline, Universal #213 (Cool White Fluorescent)		120V, 60Hz
44000120	. . . BALLAST: Slimline, Universal #378 (Cool White Fluorescent)		220V, 60Hz
44000090	. . . BALLAST: Advanced Slimline, Universal #XSH-240-S-TP (Cool White Fluorescent)		220V, 60 Hz
23005880	. . REFLECTOR ASSY: U.V.	2	
38009120	. . . REFLECTOR: U.V.	1	
44000370	. . . BALLAST: 1-30 watt, 120 V, 60Hz, Advance #L-140 F-TP, GE #8G 3706, or Universal #202-B-TC-P	1	
	*Voltage Variations Last digit 0= 120V/60Hz 1= 220V/50Hz 2= 220V/60Hz		

SPECTRALIGHT SPL-65 SINGLE-UNIT SUSPENDED

Macbeth Part No.	DESCRIPTION 1 2 3 4 5 6 7	Units Per Assembly	Usable On Code
1310016*	. LUMINAIRE: SPL-65, Final Assy	1	
23005910	. . DIFFUSING GLASS (Prismatic Lens) FRAME & LATCH ASSY	1	
29003013	. . FILTER ASSY	2	
20120014	. . LAMP: Fluorescent, BLB (Black Light Blue), 30 watt, #F30T8/BLB	2	
20115027	. . LAMP: Fluorescent, Cool White, 30 watt, GE #F36T12/CW	2	
20130001	. . LAMP: Tungsten-Halogen, 500 watt, 120 volt, Bromine filled, Sylvania #500Q/CL	4	
20120015	. . LAMP: Tungsten-Halogen, 750 watt, 120 volt, (Daylight—see NOTE below)	2	
	NOTE Daylight lamps are factory selected in accordance with critical performance criteria. To insure proper performance of your equipment, replacement lamps should be ordered directly from the Macbeth Color & Photometry Division or from an authorized dealer.		
84004310	. . STARTER: FS-4	2	
22000004	. . AIR FILTER ASSY: with mounting clips, Rotron #15449	1	
10004770	. . LINECORD ASSY	1	120V, 60Hz
10004771	. . LINECORD ASSY	1	220V, 50/60Hz
24001150	. . METER: with mounting hardware	1	
03100019	. . FAN: Muffin, Mark 4, Rotron #747	1	120V, 60Hz
03000080	. . FAN: Muffin, Mark 4, Rotron #756	1	220V, 50/60Hz
44000130	. . TRANSFORMER: Power	1	
44000140	. . AUTOTRANSFORMER: Variac	1	120V, 60Hz
44000141	. . AUTOTRANSFORMER: Variac	1	220V, 50/60Hz
44000080	. . BALLAST: Slimline, Universal #213 (Cool White Fluorescent)	1	120V, 60Hz
44000120	. . BALLAST: Slimline, Universal #378 (Cool White Fluorescent)		220V, 50Hz
44000090	. . BALLAST: Advanced Slimline, Universal XSH-240-S-TP (Cool White Fluorescent)		220V, 60Hz
23005880	. . REFLECTOR ASSY: U.V.	2	
38009120	. . . REFLECTOR: U.V.	1	
44000370	. . . BALLAST: 1-30 watt, 120V, 60Hz, Advance #L-140 F-TP, GE #8G3706, or Universal #202-B-TC-P	1	
	*Voltage Variation Last digit 0= 120V/60Hz 1= 220V/50Hz 2= 220V/60Hz		

Macbeth Part No.	DESCRIPTION 1 2 3 4 5 6 7	Units Per Assembly	Usable On Code
1310017*	. FINAL ASSY		(See * below)
23005730	. . VIEWING BOOTH ASSY	1	
1310019*	. . LUMINAIRE ASSY	1	(See * below)
23005910	. . . DIFFUSING GLASS (Prismatic Lens) FRAME & LATCH ASSY	1	
29003012	. . . FILTER ASSY	2	
20120014	. . . LAMP: Fluorescent, BLB (Black Light Blue), 30 watt, #F30T8/BLB	2	
20115027	. . . LAMP: Fluorescent, Cool White, 30 watt, GE #F36T12/CW	2	
20130001	. . . LAMP: Tungsten-Halogen 500 watt, 120 volt, Bromine filled, Sylvania #500Q/CL	4	
20120015	. . . LAMP: Tungsten-Halogen 750 watt, 120 volt, (Daylight—see NOTE below)	2	
	NOTE Daylight lamps are factory selected in accordance with critical performance criteria. To insure proper performance of your equipment, replacement lamps should be ordered directly from the Macbeth Color and Photometry Division or from an authorized dealer.		
84004310	. . . STARTER: FS-4	2	
22000004	. . . AIR FILTER ASSY: with mounting clips, Rotron #15449	1	
10004770	. . . LINECORD ASSY	1	120V, 60Hz
10004771	. . . LINECORD ASSY	1	220V, 50/60Hz
24001150	. . . METER: with mounting hardware	1	
03100019	. . . FAN: Muffin, Mark 4, Rotron #747	1	120V, 60Hz
03000080	. . . FAN: Muffin, Mark 4, Rotron #756	1	220V, 50/60Hz
44000130	. . . TRANSFORMER: Power	1	
44000140	. . . AUTOTRANSFORMER: Variac	1	120V, 60Hz
44000141	. . . AUTOTRANSFORMER: Variac	1	220V, 50/60Hz
44000080	. . BALLAST: Slimline, Universal #213 (Cool White Fluorescent)	1	120V, 60 Hz
44000120	. BALLAST: Slimline, Universal #378 (Cool White Fluorescent		220V, 50Hz
44000090	. BALLAST: Advanced Slimline, Universal XSH 240-S-TP (Cool White Fluorescent)		220V, 60Hz
	*Voltage Variations Last digit 0= 120V/60Hz 1= 220V/50Hz 2= 220V/60Hz		

SPECTRALIGHT SPL-75L/2 DUAL-UNIT SUSPENDED

Macbeth Part No.	DESCRIPTION 1 2 3 4 5 6 7	Units Per Assembly	Usable On Code
13100312	. FINAL ASSY		220V, 60Hz
10006960	. . CABLE & FANNING STRIP ASSY: R.H.	1	
10006970	. . CABLE & FANNING STRIP ASSY: L.H.	1	
10007040	. . CONTROL BOX ASSY	1	
10007000	. . LUMINAIRE ASSY	2	
23005910	. . . DIFFUSING GLASS (Prismatic Lens) FRAME & LATCH ASSY	1	
29003011	. . . FILTER ASSY	2	
20120014	. . . LAMP: Fluorescent BLB (Black Light Blue), 30 watt, #F30T8/BLB	2	
20115027	. . . LAMP: Fluorescent, Cool White, 30 watt GE #F36T12/CW	2	
20130001	. . . LAMP: Tungsten-Halogen, 500 watt, 120 volt, Bromine filled, Sylvania #500Q/CL	4	
20120015	. . . LAMP: Tungsten-Halogen, 750 watt, 120 volt, (Daylight—see NOTE below)	2	220V, 60Hz
	NOTE Daylight lamps are factory selected in accordance with critical performance criteria. To insure proper performance of your equipment, replacement lamps should be ordered directly from the Macbeth Color & Photometry Division or from an authorized dealer.		
84004310	. . . STARTER: FS-4	2	
22000004	. . . AIR FILTER ASSY: with mounting clips, Rotron #15449	1	
24001150	. . . METER: with mounting hardware	1	
03000080	. . . FAN: Muffin, Mark 4, Rotron #M756	1	
44000130	. . . TRANSFORMER: Power	1	
44000141	. . . AUTOTRANSFORMER: Variac	1	
44000090	. . . BALLAST: Advanced Slimline, Universal XSH-240-S-TP (Cool White Fluorescent)	1	
23005880	. . . REFLECTOR ASSY: U.V.	2	
38009120	. . . . REFLECTOR: U.V.	1	
44000370	. . . BALLAST: 1-30 watt, 120 volt, 60Hz, Advance #L-140F-TP, GE #8G 3706, or Universal #202-B-TC-P	1	

SECTION V

CIRCUIT DIAGRAMS

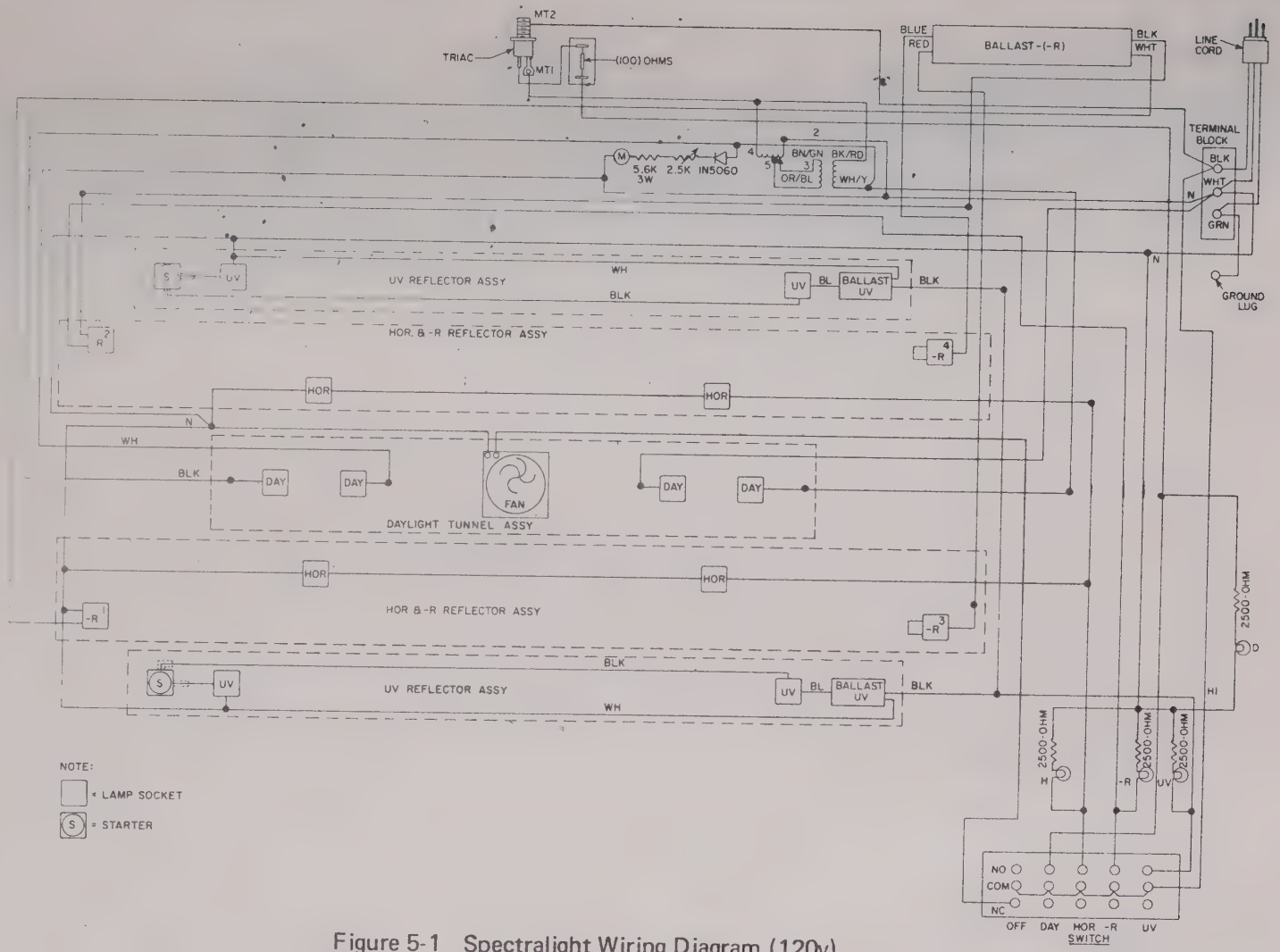


Figure 5-1 Spectralight Wiring Diagram (120v)

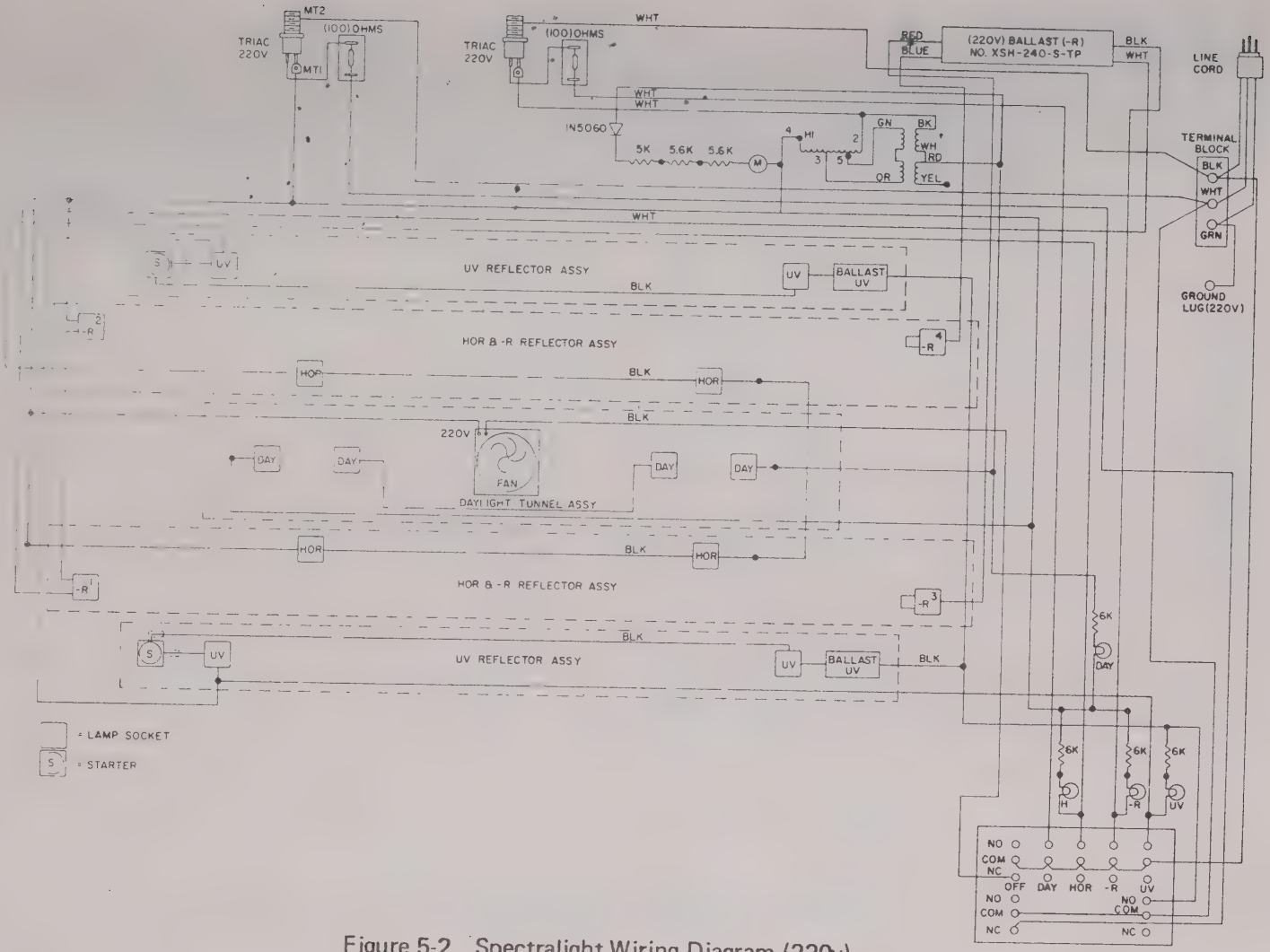


Figure 5-2 Spectralight Wiring Diagram (220v)

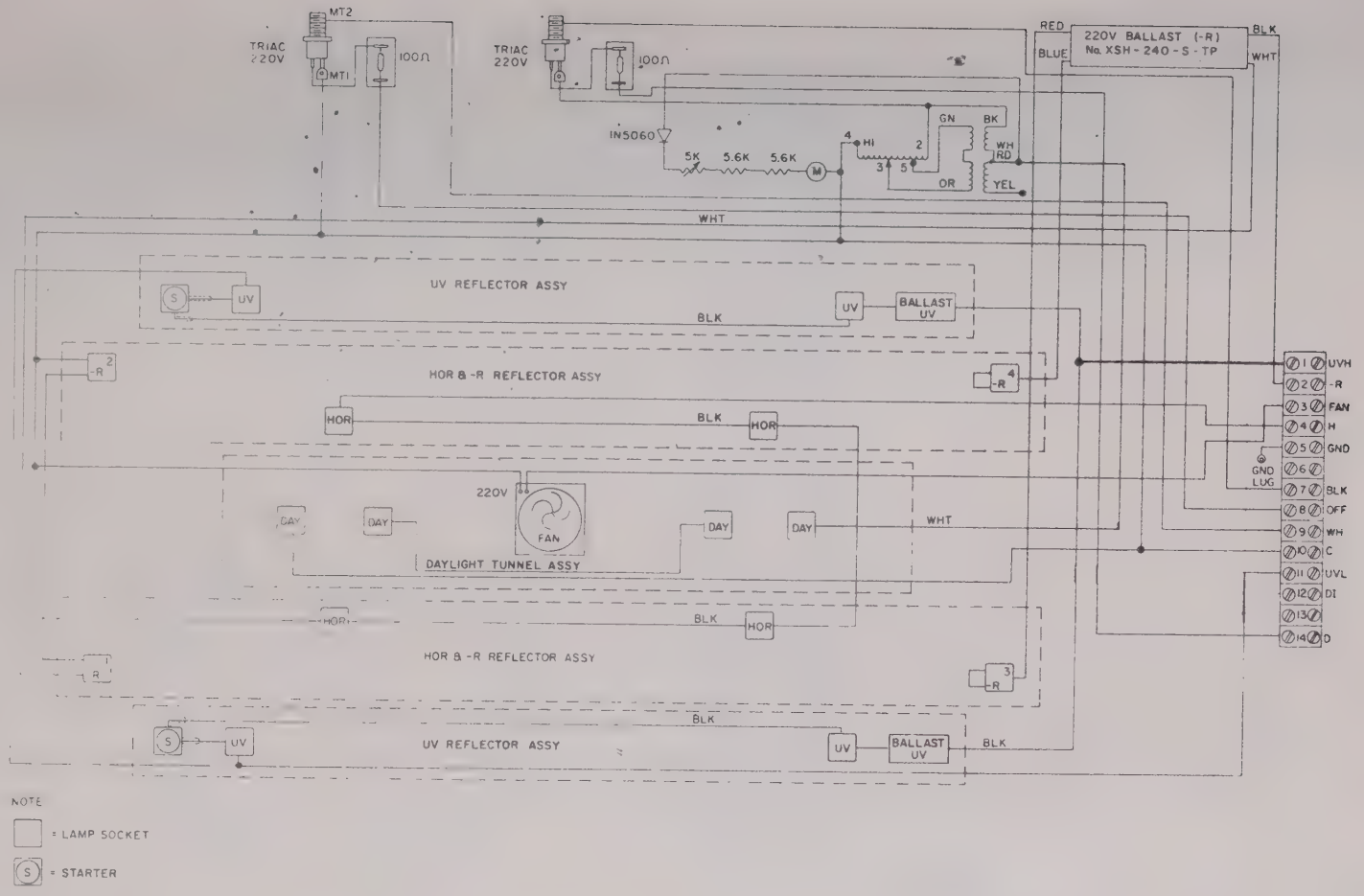


Figure 5-3 Spectralight, Wiring Diagram (220v), for Dual-Unit Installation

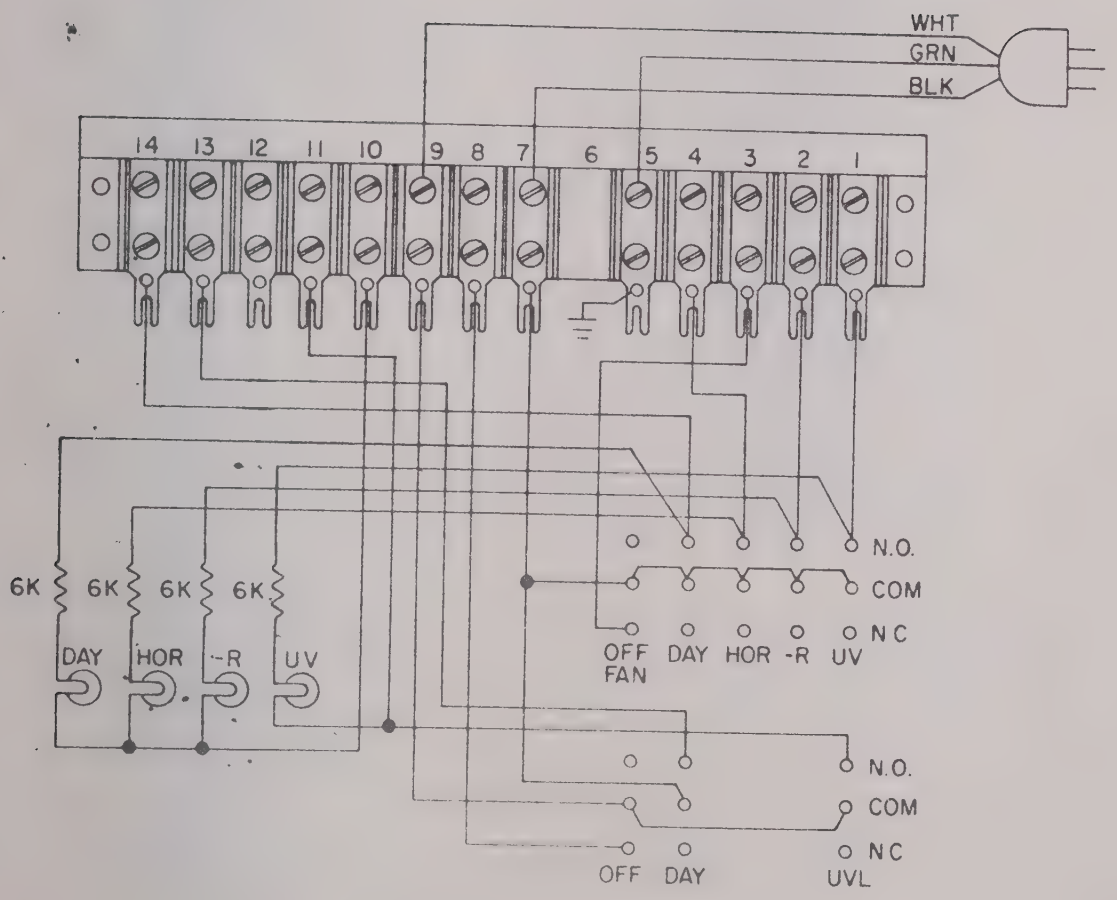


Figure 5-4 Spectralight Control Box Wiring Diagram

220 V ONLY

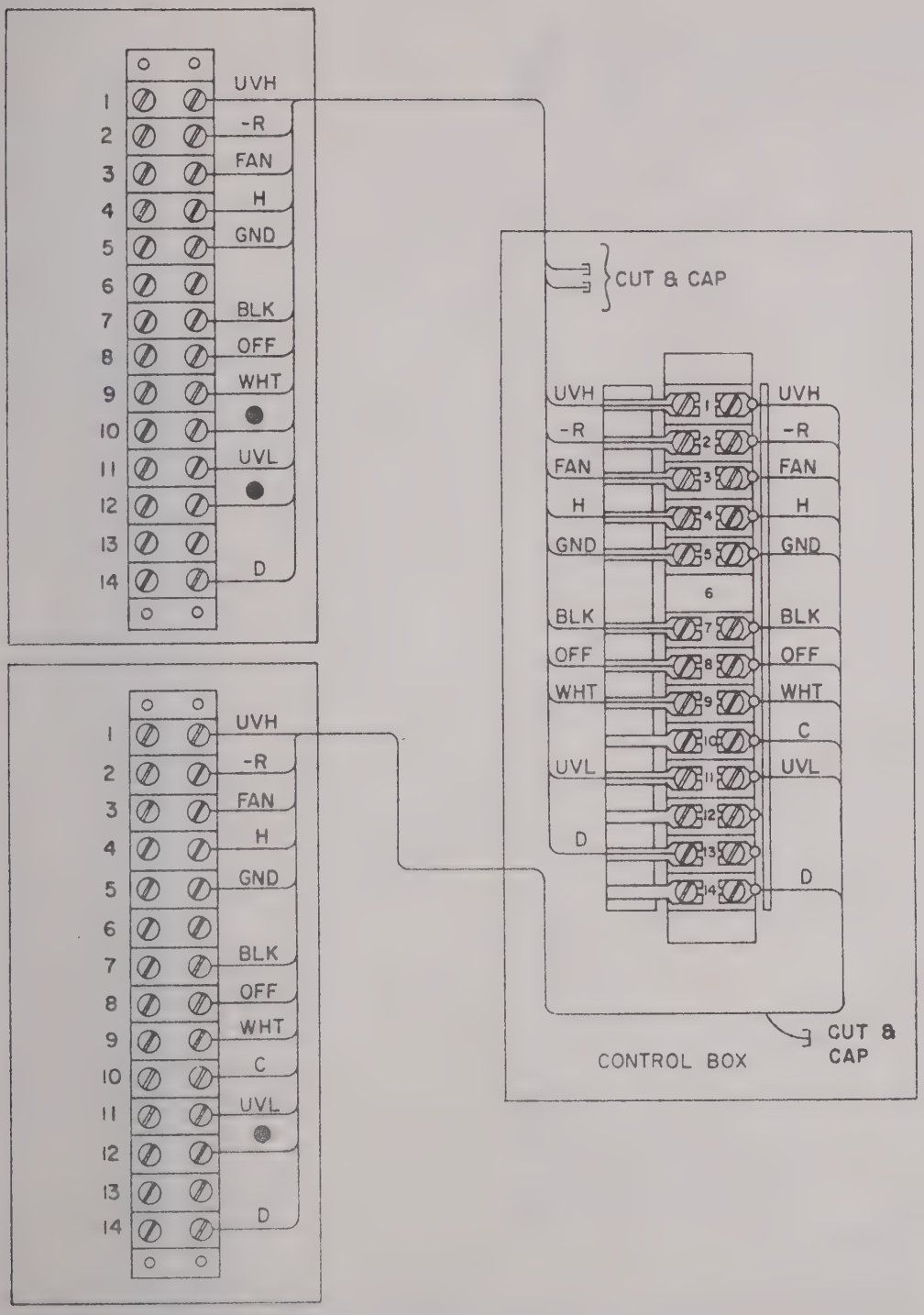


Figure 5-5 Spectralight Interconnection Wiring Diagram, SPL-75L/2

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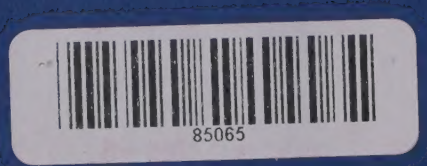
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